No. 3

July/Sept. 1980

food digest

National Information Centre
for Food Science and Technology
Central Food Technological
Research Institute, Mysore

NISSAT
Department of
Science and Technology

CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE, MYSORE-570 013

NATIONAL INFORMATION CENTRE FOR FOOD SCIENCE AND TECHNOLOGY (NICFOS)

SUBSCRIPTION ORDER FORM

Dear Sir,

Please enter my / our subscription(s) for the following publications for 1981

1.

2.

3.

Date :

Signature :
Name and
Address :

Amount enclosed :

Demand Draft / Postal Order in the name of The Director, CFTRI, Mysore-570 013, India.

		Annual Subscription
Food Technology	Abstracts (Monthly)	Rs. 45–00
Food Digest	(Quarterly)	Rs. 30–00
Food Patents	(Quarterly)	Rs. 15–00

Food Digest

Volume 3 Number 3
July—September 1980

National Information Centre for Food Science and Technology
Central Food Technological Research Institute, Mysore-570013
India.

CONTENTS

		Page
RAW MATERIALS	...	89
STORAGE & INFESTATION CONTROL	...	90
FOOD ADDITIVES	...	91
PROCESSES	...	95
BYPRODUCTS & WASTE UTILIZATION	...	96
PROCESSED PRODUCTS	...	98
EQUIPMENT & MACHINERY	...	101
PACKAGING	...	109
ANALYSIS	...	112
COMMERCIAL INTELLIGENCE	...	116
FOOD REGULATION, QUALITY CONTROL & HYGIENE.	...	134
TRANSFER OF TECHNOLOGY & NEW INDUSTRIES	...	140
PERSONALIA	...	

RAW MATERIALS

149 Substitute for clove oil

The Regional Research Laboratory, Jammu, has found out a substitute for costly clove oil of which, in 1975-76, India imported 70 tonnes worth Rs.2.1 million. The new oil 'clocimum', is comparable with clove oil in terms of its main constituent, eugenol. The oil is extracted from the plant 'vana-tulsi'. Initially the oil obtained from the plant was only 0.1%, but by proper breeding, this has been raised to 0.4%, which makes it commercially viable. The vital eugenol content is 70%; the percentage in clove oil ranges between 65 and 80. One acre of land can nurse and yield about 50 kg of oil annually out of three crops a year. The return per acre is estimated at over Rs.3,000 a year; cost of production, including land rent and oil extraction, is put at Rs.50 a Kg.

(Data India. No.9; 1980; 104)

150 Mango scheme in Haryana

The government has formulated a Rs.20.247 million mango development scheme. The scheme envisages the annual production of 15,000 tonnes and proposes to extend the mango plantation from 2,928 hectares to 5,172 hectares. The grafted quality of 112,782 mango seedlings of various varieties have been procured from various mango growing regions of the country. The programme launched by the State Land Reclamation and Development Corporation will be financed by the Agricultural Refinance and Development Corporation.

(Data India. No.18; 1980; 212)

151 More area under mushroom in Kashmir

Mushroom cultivation has developed into an important household activity in Kashmir. The number of growers have gone up to 90 against only a few dozen a few years back. The production this year is expected to be 30,000 Kgs more than last year. Both farmers and educated youngmen have taken to the profitable activity of mushroom cultivation in increasing numbers during the last few years. Conditions for commercial scale mushroom cultivation were initially created here by the scientists of the Regional Research Laboratory.

(Beverage & Food World. 7(1); 1980; 24)

STORAGE & INFESTATION CONTROL

Storage and drying of papaya latex

A range of latex storage and air drying conditions were studied with regard to the proteolytic activity of the dried latex ('crude papain'). The optimum drying temperature is between 50-55°C, activity losses on drying can be restricted to about 7% under these conditions. The activity of crude papain is the same if it is derived either from exuded latex or from that portion (about 20% of latex yield) which coagulates on the fruit surface on tapping. Latex storage at tropical ambient for 2-24 h prior to drying (with or without exposure to sunlight) causes maximum losses of about 20% in the proteolytic activity of the crude papain. Sodium chloride addition has an anti-coagulating effect on latex and accelerates the later stages of drying. Contrary to earlier reports, this causes a decreased activity in the product which may be related to changes in latex pH. Addition of EDTA or sodium bisulphite, singly or in combination, protects the latex activity (increases of 20-25% relative to controls).
(Journal of the Science of Food and Agriculture. 31(5); 1980; 510-514)

Technology for Food grain storage

The Food Corporation of India has signed an agreement with Snamprogetti S.P.A. of the Italian State-owned E.N.I. Group for the preparation of a feasibility study on the application of its new technology for the preservation of food grains in nitrogen atmosphere in Indian conditions.

This new technology envisages storage of cereals etc. in inert atmosphere long periods without the use of chemicals and without any decay in the biological and nutritional properties of the cereals.

The Italian Government will finance the study.
(Chemical age of India. 31(3); 1980; 283)

Scheme to stop food wastage

The Union agriculture ministry will launch a Rs.52.46 crore programme in the next financial year to prevent unnecessary waste of food, according to official sources.

The country-wide programme termed "post-harvest food conservation" will be taken up at the village level. In all 25,000 villages from all the states will be covered by the programme during the three-year period 1980-83.

Over 500 villages will be brought under the programme during the first year beginning April 1, 1980, while another 10,000 villages will be added in 1981-82. The number of villages will be increased to 25,000 at the final year of the programme in 1982-83.

The programme envisages a rodent control scheme to cover about 500 hectares of land around each village. This would help save a minimum of 5 percent of the pre-harvest losses.

Technical improvement of conventional storage in farms and at the household level would be made.

Apart from fumigation, insect and pest control, a major improvement would be brought about in the cleaning and drying of grains to prevent unnecessary waste of food.

The source said over 2.21 million tonnes of foodgrains-one million tonnes of stored grain and 1.21 million tonnes of pre-harvest food would be saved during the three-year period.

The Centre has already set up five-member inter-departmental committee of secretaries to control, direct and monitor the programme.
(Times of India. 17th March; 1980; p 7)

FOOD ADDITIVES

155 Synthetic Silica as an aid to food additive

Synthetic silica called SiLCRON - protects the flavour, fragrance, texture, and nutritional value of powdered foods such as seasonings, dehydrated soups, spray-dried flavours, milk substitutes, and meat curing compounds. The fine-particle silica features internal porosity and high surface area to prevent caking, absorb moisture, and disperse powders. Available in 5 grades, SiLCRON converts liquid ingredients into powders that can be measured and blended and

absorb up to 3 times their own weight.
(Food Technology. 34(3); 1980; 129)

Powdered onion for wet and dry mixes

Foremost-Gentry offers a fancy-grade onion processed from specially cultivated White Globe varieties with high pungency and flavour. The powdered product is finely-textured for maximum flavour dispersal and is also available in toasted and Frenched forms. It can be used in dry mixes without reconstituting. For rapid dispersion in wet products, the processor should start out with a paste, mixing the powder with water. It can be used in sauces, soups, salad dressings casseroles, canned meats and vegetables.
(Processed Prepared Food. 148(8); 1979; 83)

Fermented soy sauce powder

Fermented Soy Sauce Powder for use in soups, seasonings, meat products and cooked foods maintains the characteristic flavour and colour of naturally brewed soy sauce. Formulated from vegetable protein with a minimal amount of dextrin as a carrier to avoid modification or dilution of soy sauce, the water-soluble product remains stable and does not change flavour after a long period of storage. A clear liquid is produced when 180 ml of water are added to 100 g of the fermented soy sauce powder to yield 210 ml.
(Food Technology. 34(3); 1980; 129)

New natural peanut flavour

The Cino company has developed a natural peanut flavour that is oil soluble and which is compounded from all natural ingredients. The new flavour is smooth tasting and can impart the flavour of peanuts to a variety of products. The flavour is good for supplementing existing peanut flavours.
(Processed Prepared Foods. 148(8); 1979; 83)

Artificial spray dried flavours

Beck Vanilla Products offers several kinds of spray dried artificial flavours. These include; apple, green apple, firm banana, ripe banana black walnut, butter butterscotch, caramel, black cherry, wild cherry, fresh cream, egg nog, grape kola, natural lemon, juicy type lemon, natural lime, maple

natural orange, juice type orange, pineapple, punch raspberry, [illegible], strawberry and vanilla.
(Processed Prepared Food. 148(8); 1979; 92)

160 Enzyme to prevent off-flavour in orange juice

An enzyme system has been developed and used to prevent off-flavor in orange juice concentrates when they are exposed to light. The enzyme mixture is of glucose oxidase and catalase containing 750 glucose oxidase units/ml, formulated to remove the oxygen in the orange concentrate without adding any undesirable flavour to the concentrate.
(Food Technology. 34(3); 1980; 129)

161 Honey flavour

Natural Honey Flavour imparts the flavour characteristics of dark amber, sweet honey to bakery and confectionery products. The spray dried honey flavour is heat stable. It is also used as the flavour ingredient in natural honey replacement product.
(Food Technology. 34(4); 1980; 102)

162 Liquid colour concentrates

Opatint, a new line of liquid colour concentrates, is available from Colorcon, Inc. Fractionated coconut oil is used as the vehicle to disperse FD & C lake pigments for use in oil based food systems. These new colour preparations are 53 per cent more concentrated than other currently available oil based dispersions. Advantages of using these coconut oil based dispersions include; ease of handling; reduced usage levels thereby reducing inventory levels and cost; guaranteed colour reproduceability; rapid dispersibility; superior light and heat stability; and high stability against rancidity.
(Processed Prepared Food. 148(8); 1979; 90)

163 Refined liquified smoke

Charsol and Charoil by B. Heller and Company can be used in fresh or processed meats, canned meats, soups, frosted foods, snacks and other foods where a smoke flavour or colour is desired. These products can be applied directly in meat and food emulsions or can be added directly to the can for canned meats and food products. In addition, smoke colour and flavour can

be added to the surface of foods by spraying/showering, atomizing, vaporizing or dipping. These products may be added to dry or liquid seasoning blends to impart a rich smoke flavour and colour.
(Processed Prepared Food. 148(3); 1979; 112)

4 Maltodextrin for powdered beverages

Maltrin, a maltodextrin from Grain Processing Corporation (GPC) is said to enhance the quality of finished product when used in powdered citrus drinks. According to GPC, Maltrins' low DE range allows it to effectively encapsulate citrus flavours enabling them to be spray dried without masking the essence or imparting any sweetness to the finished product. In addition, Maltrin is very low in hygroscopicity and has excellent solubility characteristics that enable citrus compounds to be sprayed without a lot of caking and lumping. As a bulk extender, this ingredient can be added to citrus compounds at levels of up to 50 percent without masking the flavour or affecting mouthfeel or palatability.
(Processed Prepared Food. 148(8); 1979; 95)

5 Polyglycerol esters

Durkee Industrial Foods Group has a line of polyglycerol esters with a wide variety of applications as emulsifiers and surfactants. They can be used as whipping agent, aerator in non-aqueous lipid systems, replacement for polysorbate in icings and icing shortenings, viscosity reducer in high protein systems, emulsion stabilizer, beverage clouding agent, freeze thaw stabilizer and anti-spattering agent.
(Processed Prepared Food. 148(8); 1979; 96)

6 Protein fortifying agent for beverages

Savortone 219 Sodium Caseinate, acid stable from Western Dairy products is designed to be used as a protein fortifier in acid beverages. Stable and functional within a pH range of 0.5 to 5.5 and soluble within a pH range of 1.5 to 2.5, Savortone 219 exhibits good mouthfeel and a low flavour profile. When used in a typical fortified orange juice preparation the final product would contain approximately 4% protein from both the fortifier and the orange juice itself. This is more than in an equivalent volume of

milk, according to Western Dairy Products.
(Processed Prepared Food. 148(8); 1979; 92)

PROCESSES

167 Meat Tenderization process

A new process developed by Australian Scientist to tenderize meat will soon become commercialised in Australia. The process involves the application of low voltage electric current to cattle within one hour after slaughter. Electrical stimulation administered to a freshly killed animal had been found to prevant muscle contraction, which caused meat muscles to work hard and to use up their fuel supplies so that when the carcass is cooled, the muscles no longer have the power for significant contraction. An extra advantage in the new process is that the carcass can be boned before chilling, removing the need to chill unnecessary bone and waste. This could mean a saving of over 50% in refrigeration requirements.
(India Chemical Journal. 14(12); 1980; 21)

168 Programme for pepper processing and product development

The PC secretariat has been informed by UNIDO that the proposed UNIDO/pepper community project on preparation of a Programme for pepper processing and product development has been approved and will be operational by April 1980. UNIDO has sub-contracted the study to Tropical Product Institute, London.
(Pepper News. 4(3); 1980; 10)

169 Brewing process changed

The U.S. Brewers Association has reported to the U.S. Food and Drug Administration on its survey of 44 brewing companies in the matter of reducing nitrosamines in beer and other malt beverages. Some 95% of the firms responded and each has undertaken measures to alter its brewing process to reduce nitrosamine formation. The method used consists primarily of lowering the temperature of the open flame used to dry the barley malt while extending the drying time. In addition, sulphur is added to the fire during this procedure

to retard further nitrosamine formation. Eighty percent of malt beverages now being manufactured in the U.S. are being processed this way.
(Food in Canada. 40(1); 1980; 8, 11)

BYPRODUCTS & WASTE UTILIZATION

SCP production from waste agricultural biomass

The Waterloo process for single cell protein production recently under development in Canada utilizes raw materials which occur universally in large quantities as waste byproducts. These materials include agricultural wastes such as crop residues (e.g. straw, corn, stover, bagasse) and animal manures and forestry residues, such as wool, sawdust and pulp. The process uses a three-stage operation which involves (a) thermal and/or chemical pretreatment of a cellulosic material; (b) aerobic fermentation of the pretreated material with nutrient supplements; (c) separation of the suspended solids (the product) from the fermented broth. The SCP product obtained has a good protein nutritional value. Waterloo SCP is more attractive than the yeast for direct human use because of its lower content of nucleic acids and higher content of sulpur-containing amino acids.
(Indian Chemical Journal. 14(12); 1980; 23-24)

Single cell protein from cheese

A new single cell protein source from dairy waste substrates such as whey has been developed in France. This protein source consists of dried lactic yeast grown on lactose rich in high-grade proteins and vitamins. The product known as Protibel is now in production at several plants in France by an improved manufacturing process.

Protein content is guaranteed at 50% and the distribution of amino acids is close to that of animal proteins.

Every 100 g of Protibel contains 1.3-1.8 mg vit. B_1, 3.5-6.0 mg of vitamin B_2, 65-75 mg vit. C and 4.0-5.0 mg of vit. E, as well as other vitamins, including of all others of the B-group. The product also contains an average of 30% sugars, 6.8% fats and a number of essential trace-minerals.

For the food industry, Protibel is available in 3 forms; (i) an ultra fine powder (ii) tiny flakes for making tablets or granules, and (iii) larger flakes for direct use. It can be added to many items including crackers, soaps, pates, baby foods, drinks, milk products, flavourings and extruded snack biscuits during their manufacture, in order to fortify these food values. It can also be used directly in liquid suspension or in powder form on food.
(Indian Chemical Journal. 14(12); 1980; 20)

172 **Fruit waste and biogas**

A pilot-scale anaerobic digester is converting fruit wastes into biogas - a mixture of methane and carbon dioxide - at the Letona Cannery in Leeton, NSW. If applied on commercial scale, the process should be able to considerably reduce the fuel requirements of fruit and vegetable processing plants and help overcome waste disposal problems. The digester, with 25 m^3 capacity can handle one tonne of wet waste a day. A small gasometer on top of the tank stores up to 10.5 m^3 of gas.
(Food Technology in Australia. 31(8); 1979; 335)

173 **Plan for industrial use of prawn waste**

The Central Institute of Fisheries Technology has developed a process for manufacturing industrial flocculent from prawn waste. The institute had set up a pilot plant at Cochin to process one tonne of prawn waste within 24 hours. About 60,000 tonnes of prawn waste is available in the country every year. Imported industrial flocculent costs Rs.2000 a kg but the local product cost worked out to about Rs.35 to Rs.40 a kg. Much foreign exchange could be saved by going in for processing prawn waste within the country. The institute has also developed a process for preparing a fertiliser by mixing prawn shell waste and fish waste. This type of fertilizer is recommended for arecanut and ginger cultivation.
(Times of India. 25th April 1980; p 16)

PROCESSED PRODUCTS

4 Coconut butter

Carson Chemical of America now has available coconut butter as a superior substitute for cocoa butter.

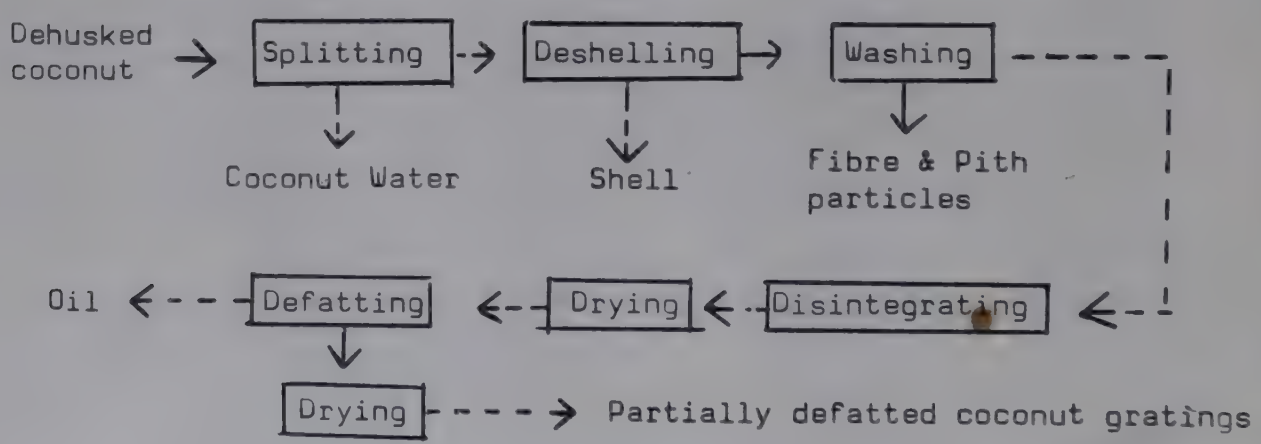
Carson states that its product is lighter in colour, milder in odour, has excellent stability against rancidity due to its very low iodine value and is much less expensive than cocoa butter.
(Manufacturing Chemist & Aerosol News. 50(7); 1979; 21)

5 Partially defatted edible coconut gratings

About 2000 tonnes of desiccated coconut are produced annually which are mainly used in the confectionery market. The Regional Research Laboratory, Trivandrum has developed a new process on partially defatted edible coconut gratings, which could be used in many common food preparation like chutneys, curries, sweets and savories.

In this process the fully mature coconuts after being separated from the shell are disintegrated, dried and defatted to give white gratings. The partially defatted gratings can be packed in bulk in tins or for retail sales in polyethylene bags.

Block Flow Diagram



The material and energy required per day of production (two shifts) are as follows:

Matured dehusked coconut	2000
Electric power	85 KWH
Raw & Cooling water	2000 gallons
Fuel (firewood)	650 kg.

The laboratory has carried out work on a scale of 10 kg. per batch.

The product was given to a number of people for domestic trials and reports received were very favourable. In laboratory evaluation also, the product was found to be fully acceptable for use in chutneys and curries.

The main equipment for disintegration, drying, defatting etc. are all available indigenously.

The capacity suggested by the Institute for a commercial plant is 2000 coconuts per day of two shifts. The capital investment required for a plant of this capacity is given below:

Fixed capital on plant	Rs. 1,15,000/-
Working capital	Rs. 80,000/-
	Rs. 1,95,000/-

Total land required is 1350 sq.m. and area of building is 140 sq.m. The cost of production of 167 kg of partially defatted coconuts 172 kg. of premium quality oil and 332 kg. of coconut shell per day has been estimated at about Rs.2,865/-.
(NRDC Process No. 867.0580; May 1980; 1-3)

176 Onion and Garlic Concentrates

The J.E. Toll Co. of USA, have developed natural onion and garlic concentrates separately. These two materials are opaque emulsions varying slightly in colour from off-white to pale yellow. They are dispersible in water and made from natural extractives of onion or garlic and water, propylene glycol, xanthan gum and lecithin. The materials are stable for at least four months in sealed containers. The concentrates are available in several

strengths. These range from those having the ability to replace up to 30 parts of corresponding dehydrated powder to those capable for replacing only 6 parts of dehydrate.
(Food Trade Review. 49(12); 1979; 717).

7 Non-fat dry milk replacer for dry cocoa mixes

Non-fat dry milk replacer - called Savorlac 806-is a dairy blend formulated for use in dry cocoa mixes. This is produced by an interaction of wet blends of casein and sweet dairy whey having specific concentrations of sodium and calcium ions. Made to duplicate the organoleptic, nutritional, and textural characteristics of non-fat dry milk in dry cocoa mixes, the ingredient improves the foaming properties of the fluid cocoa beverage.
(Food Technology. 34(4); 1980; 98)

78 Demineralized whey product

Foretein from Foremost Foods Company is a high protein demineralized whey product with a wide variety of applications. In production, edible whey is pasteurized and concentrated under low heat. The concentrate has some of the lactose removed by electrodialysis to increase the protein concentration, and is spray dried to yield a white, free flowing powder. This h s exceptionally water soluble protein when compared to similar products, has minimal water absorption allowing high concentrations to be developed with low viscosity and is available in three types - natural, calcium form and potassium form. Applications include protein drinks, fabricated foods, dietary products, infant foods, comminuted meats, sauces, puddings, cereals, snacks, coatings, dry mixes and mineral supplements.
(Processed Prepared Food. 148(8); 1979; 98)

79 Non-alcoholic powdered beer

Reconstituted with water, a new powdered beverage looks and tastes a great deal like regular beer with two considerable exceptions - it has no alcohol content and has few calories. A 0.33 litre bottle, for instance, contains only 40 calories compared with regular beer's 135.
(Food Engineering International. 5(2); 1980; 34).

180 Synthetic pyrethrin developed

The shortage of natural pyrethrin, the active ingredient in non-residual insecticides, has brought about the development of a chemical formulation consisting of a continuation of a synthetic pyrethrin and a low percentage of natural pyrethrin. Oxford Chemicals has introduced such a blend in its insecticide. Utilizing a four to one ratio of synthetic to natural pyrethrin, the blend needs little synergist to activate the effectiveness of the product.
(Processed Prepared Food. 148(12); 1979; 190)

EQUIPMENT & MACHINERY

181 Onion trimmer-slicer

This unit is similar in operation to the OLNEY Onion Trimmer but has an additional cutting blade that will slice an onion in half, as well as trim it in one operation.

In operating onions are placed in feed fingers which firmly hold the onion to assure a precision cut as the onion passes through the stainless steel cutting blades. The cutting blades or trimming blades, adjust automatically for the various size onions.

After the onion passes through the trimming blades, it is sliced in half by a third blade. At this point the onion, which is now in two halves, is released and discharges separate from the trimmed ends. The onion, which is not only trimmed but sliced in half makes peeling and additional slicing easier and more efficient.
(Food Production Management. 102(3); 1979; 22)

182 Dry-peel remover for root crops

The FMC dry peel remover eliminates the peel from root-type crops following application of steam or caustic. It is especially suited for potatoes and today's modern peeling lines since no water is used. In some

applications no additional washing is required after waste or animals feed.
(Processed Prepared Food. 148(3); 1979; 56)

Roller peeling machine

A peeling machine for potatoes and vegetables, as well as certain tropical roots and fruits, is equipped with up to ten 3-meter long rollers with carborundum linings for peeling with minimum products loss. Oscillating rings on the peeling rollers are key factors in providing uniform peeling. It has the following advantages: (a) elimination of steam or boiling rings; (b) lower energy utilization; (c) minimal maintenance cost; (d) erection of equipment simple; (e) investment cost low; (f) less space required. Capacity of machine is between 1 and 8 tons/h in accordance with size of machine, type and size of tubers.
(Food Engineering International. 4(8); 1979; 43)

Colour sorter

Acurex Corp. Icore Division has announced the new Model 5161 Ultraviolet/White Light Colour Sorter. Acurex reports that it is the only convertible colour sorter on the market. Although it was designed primarily to sort almonds, the sorter is used for aflatoxin removal from peanuts and pistachios.

Almonds are sent through a scanning chamber at very high feed rates. Friction-free, contra-rotating rollers singulate the almonds so every nut can be scanned individually.

These viewing systems are positioned at 120° angles so the entire nut is inspected. The ultraviolet illumination causes the worm-damaged portions of the nut to fluoresce. This fluorescent light is focused by lens systems onto photomultipliers which convert the light to electronic signals. The signals are processed to cause rejection of the damaged nuts.

An optional digital readout may be plugged into the Ultraviolet Colour Sorter to display the total throughput and percent rejected. The readout device is packaged in a flat box with a convenient clipboard.
(Manufacturing Confectionar. 59(12); 1979; 64)

185 Comminuting equipment for tomato processing

The D-12 Mill, manufactured by the Fitzpatrick Company, is a heavy-duty model built to full production standards and ruggedness for tomato processing and such other applications. The model includes a liquid feed throat or a hooded feed throat. It can incorporate a horizontal liquid inlet for slurry processing with the addition of a second liquid. Optional stainless steel construction is also available.
(Processed Prepared Food. 148(3); 1979; 58)

186 High pressure strainer

Filtration & valves Ltd have announced the introduction of a new, improved Vee Bee range of high pressure Y-type strainers. These are tested to ANSI class 2,500 lb and DIN 250 bar standards; they are made of heavy duty materials to overcome high flow velocities and wire drawing effects of steam. They have bolted branch connections with various sealing options for specific pressure needs; and either flanged or butt welded end connections can be supplied.
(Food Manufacture. 54(11); 1979; 75)

187 Versatile plate heat exchanger

The Fischer Combi-Flow system makes it possible to design plate heat exchangers in new flow patterns offering extremely high thermal efficiency. Two types of plate designed on this principle now make it possible to provide flow paths for two fluids which have the same film thickness but fundamentally different flow characteristics. They comprise "soft" flow paths, formed by plates with parallel corrugations, and "hard" flow paths formed by plates with intersecting corrugations.

The Combi-Flow principle makes it possible, for example, to design a liquid cooler operating with coolant as a pure counter-flow heat exchanger, even if the coolant volume is three to four times greater than the hot liquid throughput, without the coolant pressure drop reaching an excessively high and consequently uneconomical values.

This has proved successful for heat exchanger applications involving fluids of different viscosities.

They are available in capacities from 300 litres per hour up to 500 000 litres per hour.
(Food Trade Review. 49(12); 1979; 720)

Evaporative condensers

Freezing Equipment Sales, Inc. offers a complete line of evaporative condensers with capacities up to 1200 tons. The slow sound model is equipped with slow speed centrifugal fans that are quite in operation. A low power model uses axial flow fans that save 50 per cent of the energy required for centrifugal fan models.
(Processed Prepared Food. 148(12); 1979; 160)

Fish drier eliminates spoiling and waste

An automatic fish-dryer processes fish using a continuous and closely-controlled increase in temperature. It maintains evaporation from the surface and yields quality products, eliminating spoilage and waste.

At the start of the cycle, a control circuit subtracts tare from total weight and memorizes the net. To save fuel, as the drying progresses, a temperature-dependent air outlet valve automatically increases the use of recirculated air and draws less air from the atmosphere. At the end of the cycle, audible and visible indicators show that the product is ready for removal.
(Food Engineering International. 4(11); 1979; 69)

Versatile cooker-extruder

The chief feature of the unit is its product versatility. Breakfast foods, baby foods, dietetic breads, gelatinized and modified starches, confectionery, and biscuits can all be produced on the machine.

In addition to its versatility, the unit can process raw materials varying in form from finely divided powders to whole grains. Fat and sugar content can be high. The raw material can be processed at its own equilibrium moisture content so that a large proportion of products can be produced in a single stage operation.

The cooker-extruder can be utilized for the texturizing of vegetable

protein and to produce gelatinized products with very high rapid hydration levels as bases for instant foods such as dried soup mixes. Mixtures such as cocoa, sugar and milk powder have been processed for use in instant drink formulations.
(Food Engineering International. 4(10); 1979; 44)

191 Continuous extrusion cooking systems

The Wenger X-25 Continuous Extrusion Cooking Systems can produce many varieties of "Top-of-the-Line" foods. The heart of the system is the X25CF Extrusion Cooker, followed by the Cooler/Dryer, Flavour Blending Tank and the Flavour Applicator. With this system, such products as snacks, breakfast cereals, textured vegetable proteins, pre-cooked breadings, pre-cooked flours, meat analogs and protein enriched pre-cooked cereal-based foods, can be produced.
(Processed Prepared Food 148(12); 1979; 162)

192 Baking ovens

Furnace Corporation has introduced an oil fired multideck baking oven suitable for baking of bread. Heating is effected by composite oil fired burner which incorporates electrical sparker for oil flame, flame failure detector, high pressure pump for supply of the fuel oil and blower for furnishing the combustion air. The heating in the individual decks is effected from both top and bottom by means of radiation alone so that flames or hot gases do not come in direct contact with the material being baked. This also leads to very high efficiency. Both composite burner unit and recirculation fan are located in the front of the oven so that they are easily accessible for inspection and maintenance. The decks have individual lights so that loading and unloading can be done conveniently. Instrumentation includes automatic temperature control and automatic timer controlled purging so as to minimise the formation of explosive mixtures. Models are available for electrical heating or with clean solid fuels like coke/firewood.
(Industrial Products Finder. 8(3); 1979; 31)

193 New clarifier for wineries

High efficiency clarifier type CSA 160 removes the finest solid particles down to 0.5μm and the lactic bacteria. It is used in European

wineries and is especially suitable for continuous clarification of must and wine. It has a capacity of 5000-15000 litres/hr. This newly designed stainless steel bowl allows higher speeds and hence G-forces exceeding 15000 X G. The CSA 160 Model has a lot of advantages such as continuous processing, higher yield, no oxygen pick-up or colour loss and, above all, no pollution.
(Food Engineering International. 4(11); 1979; 121)

Sharples Foam Reducing Clarifier

Sharples, have released details of a modified centrifuge for the reduction of foam in liquid having a tendency to foam whilst under centrifugal force.

In the Foam Reducing Clarifier, solids and liquids are separated by centrifugal force; the clarifier-type bowl has a dam over which the liquid flows from the interior of the bowl into a small upper chamber; within this chamber is a fixed circular skimmer that picks up the liquid.

Foam reduction is achieved by reducing the entrained air in the process liquor; the mechanics of this reduction are relatively simple in that the maximum reduction in foam occurs when there is sufficient back pressure on the liquid to crest slightly beyond the lips of the skimmer. By varying the distance between these lips the clarifier can accommodate different capacities and viscosities.
(Food Trade Review. 49(11); 1979; 656)

Convenience food sterilizer

Convenience food sterilizer is designed to sterilize and cool foods packaged in flexible pouches, semi-rigid and rigid trays. Round cans or glass jars may also be processed.

Containers are processed in water with overriding air pressure. Circulating water is controlled so that all containers are processed alike. FMC holds a US patent for this water flow system which can maintain uniformity of temperature throughout all containers in a batch to a very close tolerance, according to FMC. Within a few minutes after the start of the process, temperature variations of the circulated water in between the containers is less than $\pm$ 2
(Processed Prepared Food. 148(12); 1979; 159)

196 New boneless meat tenderiser

By using Protecon's new meat tenderiser, boneless meat, including shoulders and 'open-faced' hams can be tenderised and prepared for faster, and more efficient brine take-up, at rates of up to approximately 3 tonnes per hr.

Basically the machine comprises two sets of stainless steel knife rollers, one of which is spring loaded to prevent damage if a piece of bone or knife should accidentally enter the machine.

Meat enters through a hopper and is passed automatically through the entirely stainless steel guiding system, after which it discharges into a standard 200 litre skip positioned below the machine.

As the meat passes through the knife rollers, it is cut by a total of 111 adjustable depth cutting knives.
(Food Trade Review. 49(11); 1979; 654)

197 Temperature monitor and alarm for cold storages

Central Institute of Fisheries Technology has developed an electronic instrument for measuring temperature in the cold storage. In this instrument the electronic temperature display meter can be kept far away from its temperature sensing element namely in the room of the operator/quality control officer and constant watch can be made. The temperature sensing unit can be kept conveniently anywhere inside the chamber. Several sensors also can be used alongwith a single monitoring unit so that the temperature of different rooms or that of the different places of a room can be measured. This can be done in a single meter by changing the position of a multipoint switch.

An alarm has been provided in the instrument to alert the operator against the deviation of temperature up or down from a pre-set range. The instrument has been made for operation in the range +30°C to -40°C with an accuracy of $\pm$ 1°C. It can be made in any other ranges also as desired. The temperature information can be fed to recorders also for permanent recording of temperatures as a quality check on the performance of the cold storage.

The Institute has made arrangements to supply the instrument to interested parties. They are available in the types namely 'without alarm' and 'with alarm'.
(Fish Technology Newsletter. 1(12); 1979; 6)

Thermomixer used for batch processing

The thermomixer available from Cherry-Burrell can mix, blend, beat, whip, suspened solids and formulate. The multi-function unit features two mixers, each with its own independent drives for thorough mixing and heat transfer. The heat transfer surface is provided in both sidewall and cone bottom. And the temperature differential is minimized between lining and product to protect product flavour.
(Processed Prepared Food. 148(3); 1979; 56)

Bottom filler for rigid containers

The model O-H was designed to handle wet or moist chunky foods, dust-free powders and granulated materials. Filling from the bottom up, the unit assures accuracy, according to Nalbach. Other features of the machine include an adjustable vibration and unitized change parts. Removal of parts such as filler bowls and container control assemblies, can be done quickly and easily. The O-H is constructed of stainless steel and corrosion resistant materials.
(Processed Prepared Food. 148(12); 1979; 172)

Bagging machine

The formost variety bagger is a versatile bagger that can be used with frozen foods. Unit speed is up to about 90 per minute, and is for use with polyethylene bags. It can bag in either single units or in groups, trays or clusters. Product changeover is accomplished with a quick-change bag tray.
(Processed Prepared Food. 148(12); 1979; 160)

PACKAGING

201 New paper packaging

Significant increases in polyethylene prices have led to develop a new glazed imitation parchment paper suitable for wax coating to produce bread wrapping and confectionery packaging. Available in a range of lightweight substances from 30 g.s.m. upwards, the paper's characteristics include a smooth surface to ensure the even take-up of wax or similar impregnants. Waxed capacity is maintained through the addition of high purity loadings which can be varied to suit manufacturers specifications. (Food Trade Review. 49(11); 1979; 666)

202 Degradable plastics bags

Viking Packaging have started introductory work on degradable polyethylene bags which are now undergoing extensive tests at a major plant bakery. Production of the essential ingredient supplied by Spillers Starch Supplies Ltd, is still at pilot stage, so supplies are limited.

Spillers are making two products; Plastarch, which accelerates plastics degradation by micro-organisms in the presence of the oils and minerals commonly found in all garbage tips, and Biostarch which contains the natural mineral salts as well as oils, enabling accelerated degradation of plastics when they are buried under the soil over a period of three to four years.

The quality of the polyethylene, or plastics, remains unaffected by light, while the manufacturing process is considerably less expensive than the known processes for producing light sensitive plastics. Both materials are fillers which can be used in the production of blown film, without modification of the extrusion process.

These degradable bags have very significantly reduced on stick characteristics, making the film easier to handle at the print and conversion stage.

Plastic films incorporating these materials also retain less static electricity and therefore attract less dust. The texture of the film is also modified, giving a satiny feel, desirable in a variety of packaging applications.
(Food Trade Review. 49(11); 1979; 662)

Fish transport

The mobile, refrigerated fish tank tipper developed by E.M. Wilcox Ltd of Peterborough is the first of its kind in the world. It can carry fish either live or in prime condition over long distances, because its refrigeration system keeps water at pre-set temperatures and its oxygenation system diffuses filtered air into the water to sustain the fish.

The body is built in double skin sides, the inner skin is 10 guage aluminium alloy, the outer 18 guage. Coils running between the two are attached to the refrigeration unit on the body chassis; this is powered by an independent diesel engine. The body has carried live lobster and crab in boxed palletised loads in sea water.
(Food Manufacture. 54(11); 1979; 75)

Seals for jar, bottle necks

Thatcher Plastic Packaging manufactures Celon, a self shrinking cellulose seal for use on glass or plastic bottles and jars.

Celon is applied wet in an expanded form. When allowed to air dry, the seal shrinks to a skin tight film. The film is made of a purified wood pulp that is available in large white sheets. The pulp is then treated and converted into an amber liquid called viscose. Eventually the material is regenerated to a continuous tubing. This is the final product, Celon. An untamperable seal on products such as juices and barbecue sauce may be applied with attractive graphics.
(Processed Prepared Food. 148(12); 1979; 183

Semi-automatic sealing machine

St.Joseph Engg. Works offer the semi-automatic sealing machine for the pharmaceutical, pesticide and canning industries. Suitable both economically and

operationally, its output is between 20 and 25 cans or bottles per minute. With containers on bottle rest the foot pedal is pressed gently and the machine automatically seals the containers or bottle caps. Containers of any shape or size, cans or bottles, can be effectively sealed. The main vertical shaft runs in thrust bearings, and bushing. Seals are between 18 mm and 70 mm in diameter.
(Industrial Products Finder. 8(3); 1979; 23)

206 Can opening system for food plants

Model 825A can opening system is constructed of stainless steel wherever possible. Automatic air filter, regulator and lubricator are provided. The system washes, opens and delids cans and dumps product automatically at a rate of up to 25 cans per minute with one operator. Dumping assembly provides 20 second dumping time.
(Processed Prepared Food. 148(3); 1979; 56)

207 Machine to reclaim Tea

Some imperfect tea bags are a necessary evil in high-speed filling and the tea is too expensive to be wasted. Hand reclamation of the bags is both slow and inefficient. However, there is on the market a machine which reclaims tea bags, and which in other models can reclaim drink mixes, dessert powders, soup mixes, cereals and similar products packaged in paper or film.

Flawed bags are hand-fed into a flighted conveyor which deposits them by chute onto counter-rotating circular knives. These knives cut one to three slits as the bags are fed through. Next the bags are conveyed into a screened drum. As the bags tumble, the tea is screened out and collected in a bottom hopper. The bags are discharged into a drum for disposal.
(Protein Foods and Nutrition Development Association of India Newsletter. No.21; 1980; 1)

208 Box compression fibreboard tester

M/s Unique Enterprises, Pune, are reported to have introduced a testing machine for compression strength of fibreboard and other containers. The machine is claimed to fulfil a long felt need in quality control and package

development to assess the stacking strength of the packages.

The machine can accommodate containers measuring up to 1 cubic metre. It is built with a three-scale dial to measure strengths from 0 to 250 kg, 0 to 500 kg and 0 to 1000 kg. The load v/s compression can be recorded on a graph. The machine is run on 2 h.p. 3 phase motor, and measures 2.5 mt. height x 1.6 mt. width x 1.1 mt. depth. The operating speed is 10 mm per minute.
(Packaging Digest. 7(2); 1980; 1)

Ink makes a mark on steels

Instamark ink is for marking on hard irons and steels. It reportedly eliminates problems associated with marking products by painting, engraving or letter-punching.
(Industrial Products Finder. 8(4); 1980; 79)

ANALYSIS

Food property monitors

A major break through has been achieved by Neotec Instruments Inc. USA, by introducing a number of instruments for accurate monitoring of food properties. Using the principle of light absorption in the near infrared spectrum by various organic constituents such as protein, oil/fat, moisture, starch, fibres, etc. the instruments are capable of measuring directly the percentage of these constituents in almost all types of food products, just in a fraction of a minute.

With the help of a built-in microcomputer, measurements are taken at 300 or more wavelengths and as many as 50,000 data recordings per sample are computed to give laboratory equivalent accuracy without needing skilled chemists and consumable chemicals during the entire process. The instruments have been approved by the USDA, Canadian Grains Commission and many other important international authorities, and are gaining wide popularity throughout the world. A few instruments have recently entered the Indian market.
(Industrial News Digest. 3(5); 1980; 10)

211 Fat and protein determination

Tecator, Inc. has made available the Soxtec System, a semi-automated solvent extraction system for quantitative determination of fat in grains, food, feed and raw materials. It is based on the Soxhlet principle and the Randall application of Soxhlet. Tecator's Kjeltec System I performs macro Kjeldahl nitrogen/protein analysis of grains, feed, food, water, soil, and chemicals, and Kjeltec System III performs semi-micro Kjeldahl nitrogen/protein analysis. The Kjeltec DD System provides rapid protein determination on raw materials for feedstuffs, grains, milk and meat with automated direct distillation, and the capability to perform macro Kjeldahl determination by officially approved methods on the same apparatus.
(Cereal Foods World. 25(2); 1980; 79-80)

212. Quick protein analysis

In less than 15 min the Baltimore Spice Rapid Protein Analyzer will give a direct readout of protein content. The meat sample is reacted with a fixed quantity of a known strength dye. After absorption is complete the residual dye is measured in the analyzer and relates directly to the percentage of protein in the sample. The unit has been approved by the USDA as an acceptable quality control system and results can be correlated to certified Kjeldahl results.
(Processed Prepared Food. 148(12); 1979; 208)

213 Moisture analyser

The Aquatest IV automated Karl Fischer Titrator with microprocessor control is available from Photovolt Corporation. According to the manufacturer, this instrument requires no standardization because it is always in calibration. In addition, the Karl Fischer reagent in the Aquatest IV is self-generating allowing days or weeks worth of samples to be analyzed without having to handle the reagent. Aquatest IV reads out in percentage of water. All calculations are automatically performed by the microprocessor circuitry which also alerts the operator to any irregularities in electrode operation. Analysis consists of introducing the sample of the small chamber, pushing the start key and reading the results. Applications include analysis

of beverages, raw materials, various foods, grains and other materials that can contain water even when they contain materials which normally interfere with the reaction. The instrument corrects for these interferences.
(Processed Prepared Food. 148(12); 1979; 213)

Solids/moisture analyzers

Solids/Moisture Analyzers from CEM Corporation utilize the latest developments in microwave drying and computer technology to provide rapid and accurate determinations of solids/moisture for all kinds of food products. According to CEM, digital displays on these devices show moisture or solids to within 0.01 percent. In addition, the Automatic Volatility Computer AVC Model MP is completely automatic and is said to have significant advantages over previously available equipment. Unique features of this device include no water loop, automatic tare, micro-processor control and modular, solid state controls.
(Processed Prepared Food. 148(12); 1979; 206)

Water activity system

A flat-bed recorder for water activity measurements has been specifically designed to help users comply with the Food & Drug Administrations's new requirements on water activity (A_w) measurements of low-acid canned foods. The system's two-pen, ten-inch flat-bed recorder provides two simultaneous measurements on a linear scale over a choice of broad and narrow spans within the range of 10-100% Relative-Humidity/Relative-Equilibrium Moisture (R.H./R.E.M.). All measurement ranges register on one scale and measurements are shown on a hard-copy printout that serves as a permanent record.
(Food Engineering International. 4(11); 1979; 78)

Calcium, phosphorous determination system

Tecator, Inc. has a low cost system for the determination of a Ca and P in food, feed, soil and other sources, This system can perform analyses from the same digest as is used for nitrogen or protein analysis thereby reducing cost and saving time. The system consists of a Tecator Digestion System, a colorimeter with accessories and a chemical package. Special pre-printed

calibaration forms are used to ease the readout of results. In audition, this unit, when used in combination with a Tecator distilling unit can perform official Kjeldhal determinations.
(Processed Prepared Food. 148(12); 1979; 206)

217 Automatic colour analysis

A new colour measuring instrument is to be marketed in the U.K by special products division of Henry Simon Ltd. The Digi-Colour, suitable for colour analysis in the food industry, incorporates automatic self-standardisation and, is easy to operate; no special training being necessary.

It is suitably programmed for various colour systems. Colour difference which exceed pre-set tolerances automatically operate an alarm system to indicate that colour correction is required. The system is supplied with T.V. screen and key board, cassette player/recorder and programme cassette.
(Food Flavourings Ingredients Packaging & Processing. 1(8); 1980; 51)

218 Faster Analysis of Milk and Dairy products.

Two improved models of the Mini IRMA infra-red milk analyser have been announced by the manufacturers, CP Instrumentation. One version, designated M 100, increases the rate of analysis for liquic milk samples to 100 per hr (36 sec each), and in this time can determine total solids as well as fat, protein and lactose. The other, known as P40, is able to analyse a wide variety of dairy related products, in addition to milk, at rates of 40 samples per hr.

A new accessory for both instruments is an automatic sampler which holds cassettes containing 50 or 100 samples, presenting them for analysis in turn.
(Food Trade Review. 49(11); 1979; 651)

219 Stevens Texture Analyser

The Stevens LFRA Texture Analyser, has been developed in conjuction with the Leather head Food RA and is designed to perform a wide variety of tests where a probe is pressed on to or into a product to determine factors such as gel strength, breaking point, hardness, and consistency.

Operation of the analyser, by push-button and thumbwheel selector, is quick and simple and the manufacturers claim high accuracy and reproductibility.

To augment the digital readout, the instrument will power a chart recorder to provide hard copy of load, in grams, as a function of penetration distance, in millimetres.
(Food Trade Review. 49(11); 1979; 653)

Filtration equipment

Single-Sample Titration System - called the Titrimeter II AEP - for handling aqueous and nonaqueous samples, operates in both fixed-endpoint and endpoint-seeking modes. Utilizing microprocessor control to automatically deliver titrant with an accuracy of ± 0.1% of syringe volume, the Titrimeter II AEP calculates and prints out all end-points. The modular titration system continuously displays dispensed titrant volume.
(Food Technology. 34(3); 1980; 131)

Microbe bank in Japan

A microbe bank will be built at the Institute of Physical and Chemical Research, Japan, to preserve microorganisms and provide them for research scientists. The facility, designed to preserve bacteria, actinomycetes and fungi, and keep information on them, will be built as part of the life science research project promoted by the Science and Technology Agency.
(Manufacturing Chemist & Aerosol News. 50(7); 1979; 14)

COMMERCIAL INTELLIGENCE

PRODUCTION (RAW MATERIAL)

Soybean area

The revised estimates of 1978-79 area under soybeans in the different States of India are as follows:

State	Area (in hectares)
Machya Pradesh	2,32,562
Uttar Pradesh	68,690
Karnataka	1,139
Bihar	671
Himachal Pradesh	106
Total	3,03,168

(Soybean Marketing Information No.21-22; 1979; p 1)

223 Soybean marketing

The production of soybeans in M.P. was estimated to be around 2.3 lakh tonnes. Under the price support scheme, the National Agricultural Cooperative Marketing Federation procured about 66,000 tonnes of soybeans from M.P.

Disposal	Approximate quantity (in tonnes)	Per cent of total
Purchased and processed by industry in M.P.	1,00,000*	43
Purchased by NAFED	66,000**	29
Purchased by processors/ traders of other States (mainly Gujarat & Maharashtra)	25,000**	11
Quantity purchased and processed	1,91,000	83
Retention by farmers	39,000	17
Grand Total	2,30,000	100

* Includes about 80,000 tons of soybeans processed.

(Soybean Marketing Information No.21-22; 1979; p 1)

All India final estimate of banana 1978-79

State	Area (Thousand hectares)	Production (Thousand Tonnes)
Andhra Pradesh	18.1	264.9
Assam	21.7	280.1
Bihar	8.3	41.3
Gujarat	16.8	382.2
Karnataka	15.9	79.3
Kerala	50.1	615.4
Madhya Pradesh	7.9	154.5
Maharashtra	45.4	1203.6
Manipur	11.7	21.9
Meghalaya	2.9	38.0
Orissa	17.6	124.0
Tamilnadu	58.9	1312.9
Tripura	2.8	18.0
Uttar Pradesh	0.6	2.4
Andaman & Nicobar Islands	0.9	3.6
Mizoram	0.7	3.9
All India	270.3	4546.0

Banana crop is not grown to any appreciable extent in other States and Union Territories not mentioned above.

(Directorate of Economics & Statistics, Ministry of Agriculture. Govt. of India, New Delhi)

All India final estimate of arecanut (Areca catechu) 1978-79

State	Area (Thousand hectares)	Production (Thousand Tonnes)
Andhra Pradesh	0.2	0.2
Assam	46.4	44.5
Karnataka	50.0	61.5
Kerala	62.7	51.1

(Contd.....)

Maharashtra	2.1	2.5
Meghalaya	6.5	0.9
Tamil Nadu	4.2	2.9
Tripura	0.6	0.4
West Bengal	3.1	0.8
Goa, Daman & Diu	1.4	1.5
Mizoram	Nil	Nil
All India	177.2	166.3

* Dried nuts without husk (Processed nuts)

1 Tripura State has been included in this All India final estimate for the first time.

2 Arecanut is not grown to any appreciable extent in other States and Union Territories.

(Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India, New Delhi)

226 Comparative data on pepper production and export

	1978	1979 (Est)-	1980 (Forecast)
India			
Production	34,400	36,000	35,000
Export (Black only)	18,745	20,000	25,000
Indonesia			
Production	36,600	25,000	30,000
Export	37,090	22,000	26,000
White	11,314	6,711	7,930
Black	25,776	15,289	18,070
Malaysia			
Production	31,564	35,500	35,000
Export	31,564	35,500	35,000
Black	22,894	25,749	25,386
White	8,620	9,751	9,614
Brazil			
Production	30,000	30,000	35,000
Export	29,957	29,957	31,500
Black	25,463	25,463	26,775
White	4,494	4,494	4,725

(Pepper News. 4(3); 1980; 13)

All India final estimate of cardamom 1979-80

State	Area (Thousand hactares)	Production * (Thousand tonnes)
Karnataka	31.4	1.9
Kerala	52.7	3.0
Tamil Nadu	4.9	0.4
All India	89.0	5.3

* Production of dried cured cardamom.

Cardamom is not grown to any appreciable extent in other States and Union Territories.

(Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India, New Delhi)

PRODUCTION (INDUSTRIAL)

Starch units

The President of the All-India Starch Manufacturers' Association, has pointed out that the capacity utilisation of starch units was only 56 percent during the last few years. In 1978, the production was 1,09,560 tonnes, whereas the licensed and installed capacity was 1.96 lakh tonnes. There were now nine manufacturing units with an annual turnover of Rs.50 crores. While these units themselves were passing through rough weather, the government had issued letters of intent to 17 more units, which when commissioned would produce on additional 2.48 lakh tonnes.

(The Economic Times. 5th July; 1980; 6)

Salt production and demand

Nearly one-third of the salt production is consumed by the industry. The chemical industry alone consumes about 20 lakh tonnes of salt per year. While the amount of salt used by the industry has gone up from 13.7 lakh tonnes in 1968 to between 22 and 25 lakh tonnes in 1979, that for human consumption has increased from 36.5 lakh tonnes to 50 lakh tonnes during the corresponding period. The total demand for salt at present is estimated at 70 lakh tonnes.

(Industrial News Digest. 3(5); 1980; 5)

230 Distilleries - installed capacity and utilization

Name of State	No. of distilleries	Installed capacity (K.L)
Andhra Pradesh	14	48472
Assam	1	1620
Bihar	8	46410
Gujarat	5	26300
Goa	2	736
Haryana	2	11550
Himachal Pradesh	1	1040
Karnataka	16	51815
Kerala	4	6470
Madhya Pradesh	6	17200
Maharashtra	24	168696
Nagaland	1	1350
Orissa	3	5196
Rajasthan	3	7000
Punjab	2	3854
Tamil Nadu	8	71000
Uttar Pradesh	24	265398
West Bengal	3	4830
All India	127	738937

The all-India percentage utilisation vis-a-vis the installed capacity during the last three years is as under:-

Year	Percentage utilisation vis-a-vis installed capacity
1977	67.5
1977-78	68.7
1978-79	68.7

The production figures of molasses and alcohol from 1977-78 to 1979-80 are given below:

Year	Molasses production (Lakh tonnes)	Alcohol production (Million litres)
1977-78	30.80	500.00
1978-79	25.80	437.90
1979-80	16.65	405.96

(Financial Express. 17th May 1980; p 5)

EXPORTS AND IMPORTS

231 Processed foods export

The Processed Foods Export Promotion Council has revised its export target for 1980-81 from the earlier figures of Rs.148 crores to Rs.160 crores. However, it has also identified the constraints, which if not removed may lead to shortfall in exports.

The main problem faced by the fruit and vegetable products industry is the high cost of tin containers, accounting for roughly 30 to 35% of the total cost of a product.

The Council considers the current facility to import cans for meeting 10% of the industry's requirement as inadequate. Despite this limitation, some of the exporters' initiative to import cans from Taiwan in flattened form will give a "competitive edge to our products".

Another difficulty being faced by the industry is the suspension of supply of levy sugar by the government, following the sugar crisis. The commodity is used in preparing fruit juices, syrups, jams and the like. This handicap has forced one syrup manufacturer to cancel an export order worth Rs.35 to Rs.40 lakhs from Middle-East for supply of fruit flavour cordial (60% sugar content).

Meanwhile the dehydration industry is facing uncertainty due to lack of stable demand for dehydrated fruits and vegetables. The Council

has suggested that Commerce Ministry should sponsor a delegation for exploring the market in developed countries. The Council intends to export processed fruits and vegetables worth Rs.20.50 crores.

Regarding meat and meat products, as against the export target of Rs.9 crore for April - June, 1980, the Council has estimated a shortfall of Rs.4 crores. The shortfall caused by ban on the export of fresh chilled meat may lead to erosion of Indian base in the established markets. The Body has planned to export meats valued at Rs.36 crores during this fiscal year.

Anticipating abundant exports of fresh onions, the Council hopes to exceed the target for fresh fruits and vegetables set at Rs.28 crores. (Industrial News Digest. 3(7); 1980; 13)

232 **Export potential of fresh fruits and vegetables**

India annually produces around 10 million tonnes of vegetables (excluding onions and potatoes) and 20 million tonnes of fruits. There is still much larger potential that exists for fresh fruits and vegetables production.

The total production of fresh fruits may be placed at 20 million tonnes, the major fruits being mangoes (9.1 million), bananas (3.2 million) citrus (1.5 million) and apples (0.7 million). India's potential for a much greater output of fresh fruits remains unexploited. This is evidenced by the fact that while total area under fruits in the country is approximately 1.6 million hectares, this constitutes a mere 0.98 percent of the total cropped area. Increased production through higher yields would not only contribute to fulfilling domestic demand but also help create additional surplus for export. The export potential for the fruit and vegetable group has been rated as very high by the Task Force on Agricultural Exports.

The annual production of mangoes, at present, is around 9 million tonnes, consitututing 70 percent of global production. The total area under mangoes is estimated at 977,000 hectares, with an average yield of about 9 tonnes per hectare. Though a number of varieties are grown in India, the prized varieties are the Alphonso and Pairi of Western India, the Dasheri, Langada, Malda and Sehroli of UP and Punjab, the Bangalore and Komani of Tamil Nadu and the Banganapalli and Malgoba of Andhra Pradesh. U.P. tops

the list with an area of 3,90,000 hectares and production of about 3 million tonnes. The other major mango-growing States-Andhra Pradesh, Bihar, West Bengal, Orissa, Kerala and Tamil Nadu together account for an area of 476,000 hectares and production of about 5 million tonnes.

Exports of mangoes have risen significantly from 1,716 tonnes valued at Rs.5.35 million during 1973-74 to around 3,300 tonnes valued at Rs.30 million annually during 1977-78 and 1978-79. However, the total volume of exports constitutes a mere 0.04 percent of the country's production of mangoes. India's major market for fresh mangoes continues to be Gulf region, particularly Dubai and Kuwait.

The variety of mango, which is prized in the Gulf, is the Alphonso grown in the Konkan region of Maharashtra, on account of its excellent quality and flavour. As a measure of boosting exports of this variety, the Task Force on Agricultural Exports has suggested bringing an additional 10,000 hectares in the region with central assistance. The report of the Task Force envisages export of 10,000 tonnes of fresh mangoes valued at Rs.100 million by the end of the sixth plan. The processed Foods Export Promotion Council has fixed a target for the year (1979-80) of 5,000 tonnes valued at Rs.50 million. India is the World's second largest producer of bananas, after Brazil. The annual production of the fruit in the country is placed at around 3.2 million tonnes. However, the yield in India is low compared to other leading producers like Ecuador. The main producing States are Maharashtra, Tamil Nadu, Kerala, Gujarat, Andhra Pradesh, and Karnataka. Though a number of varieties are grown in the country, only a handful are commercially important. Among these are Poovan, Dwarf Cavendish and Robusta; the last mentioned variety, is both high-yielding and superior in quality. The Basri (Dwarf Cavendish) variety is grown mainly in Maharashtra and Gujarat, in the districts of Jalgaon, Bardoli, respectively and is exported from the country. The Poovan, the other major variety is grown mainly in the South, the consumer response abroad for this variety has not been particularly encouraging.

India, though a leading producer of bananas, has been exporting only very limited quantities to the neighbouring Gulf countries due to lack of organised effort to put the banana trade on a sound footing, the lack of adequate reefer cargo space, the requirement of sophisticated packing and quality problems like 'spots' on the skin and selecting sizes conforming to international specifications and the high degree of elimination involved in

the selection. The National Commission on Agriculture, in its report, has recommended increase in area under banana with a wider dispersal of particularly small scale production, to meet both domestic and export demand. The research base for the fruit is deemed satisfactory, wi all the major banana growing states having their own units for research. The Indian Horticultural Institute, for instance, has been involved since 1968, in a comprehensive programme for banana development with special emphasis on exportable varieties. It is possible to double the existing yield of bananas, thereby raising production and exportable surplus.

The production of citrus fruits in the country annually is about 1.5 million tonnes, with oranges constituting the bulk of it, that is, 1 million tonnes. India ranks 7th in the work production of citrus fruits. The major orange producing states are Maharashtra (Vidharba region), Andhra Pradesh and Karnataka. Citrus occupies the 3rd position among commercial fruit crops produced in the country. Among citrus fruits, the most important varieties, grown on a commercial scale, are the Sweet Orange (Malta Sathgudi or Mosambi) the Santra (Mandarin oranges) and the Nimboo. Grapefruit and Pomelo are grown to a limited extent. Of the total area under citrus, 40 percent each is used by sweet oranges and limes. Over the years, there has been a citrus decline caused by a certain virus disease stunting the growth of the tree. However, the export boom in recent years has provided a much needed impetus to orange growers in the Vidharba region, where there are indications of increase in area under cultivation.

Exports of citrus, mainly oranges, in the past 3 years barring 1978-79, has been of the order of about 4,000 to 5,000 tonnes fetching annual earnings of Rs.8 million to Rs.10 million. The major importers are Iran and Bangla Desh. Other countries in the Gulf region account for the rest. The gulf is a growing market for fresh fruits and there is considerable scope in further boosting citrus exports to this region taking advantage of the proximity of the area and having in view the perishability of this fruit. However, quality requirements abroad are exacting and the fruit should conform in size, shape and colour to export requirements. For export to Iran, for instance, uniformly green fruit is needed. There is need, too, for improvement in packing to withstand, rough handling.

The large export potential, hitherto untapped, has prompted continuous research on the citrus. For instance, the Central Food and Technological

Research Institute (CFTRI) Mysore, has developed a certain mixture in which oranges are dipped for gloss. The citrus being rich in vitamins A, B, and C with pleasant and refreshing flavour, has become an item of daily diet.

India's annual production of pineapples is estimated at around 200,000 tonnes representing hardly 4 percent of the estimated world production. Kerala is the major producing area, accounting for over 50 percent of the country's production, with an estimated area of about 4,852 hectares spread over 8 districts. Karnataka is the next important producer, with an area of 1,700 hectares under pineapples and an estimated production of 32,000 tonnes. An additional 2,000 hectares is likely to be brought under the World Bank Project Programme, 2000 acres under Bulgarian Project and another 1500 hectares under ARC Loan Programme. Other important producing regions comprise the north eastern region.

India's annual exports of pineapples are only around 100-200 tonnes. The world trade in this fresh fruit is limited, as trade is largely in canned pineapples. However, there is still scope for increasing exports of the fresh fruit which will open up areas which currently face problems in marketing horticultural perishables, such as the States of the eastern region, India's export market for pineapples is in the Gulf region, whose offtake can be stepped up by releasing greater quantity.

The apple is a temperate fruit grown largely in the hills of Himachal Pradesh and Jammu and Kashmir. The annual production is around 700,000 tonnes. India's annual exports of apples in recent years have been 400 to 500 tonnes. The Horticultural Produce Marketing and Processing Corporation Limited in Himachal Pradesh, a State undertaking is presently involved with the assistance of the World Bank, in the promotion of apple production and processing in the State. This is expected to give a boost to the production of the fruit.

Apples are grown in the country largely in the states of Jammu and Kashmir and Himachal Pradesh. The current annual production in Jammu and Kashmir may be placed at 525,000 tonnes while the local demand in the State is around 80,000 tonnes. The off take of apples from the State for domestic consumption in the country is around 50 to 60 percent of the total production.

As regards the export potential for fresh fruits, it may be mentioned there is a large market for them in the Gulf region and it has been estimated at around 400,000 tonnes annually, of which Saudi Arabia, the most important

market, accounts, for about 250,000 tonnes. The major fruits imported by the Gulf Countries are citrus fruits, bananas and apples.

India's average annual export of vegetables is of the order of about 4,000 to 5,000 tonnes, However, since 19th July, 1977 a ban on export of vegetables had been in force, which has recently been lifted. Future exports of vegetables are permitted only through designated state and central agencie (Economic and Commercial News. 10(14); 1980; 11-12)

233 Soya meal export

State/firm	Quantity of soya meal exported (in tons)
Madhya Pradesh	
General Foods (p) Ltd., Indore	14915
Vippy Solvex Products (P) Ltd., Dewas	9833
Mansingka Oil Mills, Khandwa	3831
Malwa Vanaspati & Chemicals, Indore	1482
Premier Extraction Pvt. Ltd., Indore	1514
Bhandari Crossfields, Indore	818
Jagmanek S.E. Plant, Sehore	481
Sri Krishna Oil Mills, Indore	390
Total	33264 (79)
Other States	
Jayant Extraction Industries, Jamnagar, Gurajat	2413
Schokhi Industries	1255
Others	5092
Total	8760 (21)
Total export	42024 (100)

(Soybean Marketing Information No. 21-22; 1979; 2)

Seafood exports rise

During 1979 the export of seafood touched Rs.2,620.3 million (92,184 tonnes) improving from Rs.2,121.6 million (77,946 tonnes) in the year previous. Frozen shrimp and fresh frozen fish were mainly credited with the export swell. Frozen frogs legs, frozen lobster tails and frozen cuttlefish also registered good jumps. Of the 29 items exported that year, frozen shrimp continued to be single largest package, accounting for a high 80% of the total value of exports, followed by frozen fresh fish, 4.4%, frozen frogs legs, 3.3% and frozen lobster tails 2%. Japan and the US continued to be the major markets for frozen shrimp accounting for 93% jointly. Supply to Japan jumped 12% to 36,584 tonnes, but to the US it slumped 17%. India strengthened its position in European markets, supplying 32,941 tonnes of shrimp against 2,314 tonnes the year before. West Europe continues to be the major market for frozen frogs legs, with France the largest single consumer.
(Data India No.11; 1980; 125)

Help for exporters to New Zealand

The New Zealand Government has established at Wellington, New Zealand, the Developing Countries' Liaison Unit (DCLU) for assisting developing countries assess market prospects for their products in New Zealand. It gives market information and assistance to individual exporters and trade missions from developing countries visiting New Zealand.
(Protein Foods and Nutrition Development Association of India. No.16; March, 1980; 2)

Voluntary pre-shipment inspection

For the benefit of overseas buyers who would like to get their goods inspected before shipment in respect of those commodities not brought under the purview of compulsory quality control and pre-shipment inspection, arrangements, are made by the Export Inspection Council in India for carrying out voluntary pre-shipment inspection. Such voluntary inspections are undertaken in respect of bulk consignments only.
(Spices Newsletter. 14(1 & 2); 1980; 8)

237 FIEO set up Regional Committees

The Federation of Indian Export Organisations, New Delhi have set up within the country Regional Committees for Eastern, Western, Northern and Southern Regions, with Regional Convenors for decentralised attention. The objectives of the Regional Committees would be:

- To meet as often as possible and activate interest in FIEO in the respective regions.
- To examine and resolve whenever possible, problems of exporters in the region.
- To maintain liaison with local and regional bodies and authorities.
- To suggest and implement regional activities and exercises.
- To guide the functional aspects of FIEO's Regional Offices whenever they are set-up.
- To engage in any other activity conducive to the interests of the members from the region.

Shri Verghese Eapen, Managing Director, Prashnath Overseas Supplies Hous (P) Ltd., 58, Pantheon Road, 1st Floor, Egmore, Madras-600 008. (Tel: 38592, 87793, Cable: POSH-EXPORT, Telex: C/o 7217-MS) has been nominated as a convenor for the Southern Region.
(Spices Newsletter. 14(4); 1980; 4)

238 Sugar imported from London

India has bought nearly 1.5 million tonnes of refined sugar through London commodity brokers in the last few days. The bulk of the order consists of Brazilian Crystal sugar at about $ 510 a tonne, excluding transport charges.
(Data India. No.18; 1980; 206)

TRADE INFORMATION

239 General trade enquiries

Productos Quimo vegetables S.A. Sur-81, No. 269 Col. Merced Balbeena, P.O. Box No. M.-1159 Mexico, 8, D.F. The firm desires to import medicinal herbs, natural gums, food products, shellac, dill seeds etc.

Al-Harbi Int. Est., P.O. Box No.46907, Fahaheel, Kuwait, Arabian Gulf. The firm desires to import canned food stuffs and other goods.

Ahmad Husain Aly Khaja, P.O. Box No. 20290, Kuwait, Arabian Gulf. The firm desires to import cardamom, special coffee seeds, barley, special wheat, cashew kernels, etc.

Al-Khomri Trading & Contracting Corp., P.O. Box No.7417, Jeddah, Saudi Arabia, The firm desires to contact tea producers for importing first quality of Indian tea.

Al-Daboos Trading & General Cont. Est., P.O. Box No. 1382, Dubai, U.A.E. The firm desires to import meat, agricultural chemicals, fertilizers and foodstuff.

Ampac International (Pte) Ltd, (Suite 1110), 11th Floor, Shaw Towers, Beach Road, Singapore-0718, is interested to import sesame seeds, groundnuts, dawsen curry paste and dawsen curry powders, dried shark fins and sea cucumbers.

Alrefeed Trading & Constracting Est., P.O. Box No.6473, Jaddah, Saudi Arabia, is interested to import eatables, furniture, soft drinks, grains, cooking oil, etc.

Al-Taqi Trading Agencies, P.O. Box No. 4063, Hodeidah, Yemen A. Republic, is interested to import biscuits, confectionery, pickles, mango juice and pulp, vermicelli and other non-food items.
(Industrial News Digest. 3(4,5,7); 1980).

New Zealand importers of spices

Greggs Ltd.,
P.O.Box 956,
Duncdin.

N.Z. Coffee & Spice Co. Ltd.,
P.O. Box 4088,
Christchurch.

Toop & Johnston Ltd.,
P.O.Box 57,
Wellington.

Henry Berry Ltd,
P.O.Box 501,
Wellington.

The Sanitorium Health Food
Co., Ltd., Private Bag,
Auckland

Butland Industries Ltd,
P.O. Box 12176,
Auckland.

James Crisp Ltd.,
P.O.Box 1274
Auckland.

G.S. Hall Ltd.,
P.O.Box 536,
Auckland.

Boustead Gapes Ltd.,
P.O.Box 2738,
Wellington.

G.S. Lintott & Co., Ltd.,
P.O. Box 877,
Auckland.

A. Murdock & Co. Ltd.,
P.O. Box 5027,
Dunedin.

Gunn Gollin Ltd.,
P.O. Box 794,
Wellington.

Robt. Bryce & Co. Ltd.,
P.O. Box 3747,
Wellington.

Lane Latimer Ltd.,
P.O.Box 709,
Dunedin.

Wm. Aitken & Co. Ltd.,
P.O.Box 8,
Wellington.

Bush Boake Allen (NZ) Ltd.
P.O.Box 27162,
Auckland.

R.W. Midgley (NZ) Ltd.,
P.O.Box 1063,
Christchurch.

(Spices Newsletter. 14(1 & 2); 1980; 9)

241 Canadian importers of spices/spices oil

1. Canada Safaway Ltd.,
   49, Cityview Drive,
   Raxdale,
   Ontario M9W 5A5.

2. A & P Food Store,
   5559 Dundas Street West,
   Islington,
   Toronto M9B 1 B 9,
   (Mailing address:
   P.O. Box 68, Terminal A,
   Toronto M5W 1A6.

3. Dominion Stores Ltd.,
   6855 Cote des Neiges Road,
   Montreal Quebec H3S 2S7.

4. Steinbergs Ltd.,
   5600 Boyce Avenue,
   Montreal, Quebec.

5. Barbour Foods Ltd.,
   P.O. Box 1130,
   Sussex, N.B.,
   E0E 1P0.

6. Canadian Spice Mills Regd.
   141 Dalhosie,
   C.P.277, Station "B",
   Quebec, P.Q. G1K 4C5.

7. G.S. Dunn & Co., Ltd.,
   80 Part Street North,
   Hamilton, Ontario,
   L8R 2M9.

8. Food Products Ltd.,
   2610 J.B. Deschamps Blvd.,
   Lachine P.Q.
   H 8 T 1 C 9.

9. Horton Spice Mills Ltd.,
   1875 Leslie Street,
   Don Mills, Ontario,
   M3B 2M5.

10. Keith Food Products Ltd.,
    P.O. Box 836
    Hull, P.Q.
    J8X 3Z1.

11. Nbob Foods Ltd.,
    P.O.Box 2170,
    Vancouver, B.C.

12. Norda Ltd.,
    833 King Street West,
    Toronto, Ontario,
    M5T 2T5.

13. W.H. Schwartz & Sons Ltd.,
    P.O.Box 490,
    Halifax, N.S.,
    B3J 2R9.

14. Canada Packers Ltd.,
    2200 St. Clair Avenue West,
    Toronto, Ontario,
    M6N 1K4.

15. Belfour Guthrie (Canada) Ltd.,
3240 Bloor Street West,
Toronto, Ontario,
M8X 1E4.

16. Brooke Bond Foods Ltd.,
1/6700 Trans Canada Highway,
Kirkland, P.O.
H9H 3K9.

17. Club House Foods Ltd.,
P.O.Box 788,
London, Ontario,
N6A 4Z2.

18. Ellison Milling & Elev.
Co. Ltd.,
1405 - 2nd Avenue,
Lethbridge. Alta.

19. Griffith Laboratories Ltd.,
757 Pharmacy Avenue,
Scarborough, Ontario,
MIL 3J8.

20. Independent Products
Canada Ltd.,
40 Bates Road,
Montreal, P.O.,
H2V 1 A8.

21. Loretta Foods Ltd.,
279, Norsemen Street,
M8Z 2R5.

22. National Spice Ltd.,
260 East 5th Avenue,
Vancouver, B.C.,
V5T 1H3.

23. Reckitt & Coleman (Canada)
Ltd.,
2275 52nd Avenue,
Lachine, Quebec.
H8R 3Y8.

24. Spices & Botanical Products
Ltd.,
450 Lebaau Blvd.,
Montreal, P.O.,
H4N 1R7.

25. Young-Winfield Ltd.,
89 Cannon Street West,
Hamilton, Ontario,
L8R 2B7.

26. Calkins & Burke Ltd.,
1291 West Georgia Street,
Vencouver, B.C.,
V6E 3J3.

27. Caspo Foods Ltd.,
93 Judge Road,
Toronto, Ontario,
M8Z 5B3.

28. Cominso (Canada) Ltd.,
200 Rue St Jacque,
Suite 702,
Montreal, Quebec,
H2Y 1M1.

29. Halford Lewis Ltd.,
465 St. John St., Suite 606,
Montreal, Quebec,
H2Y 2R6.

30. Northern Sales (1963) Ltd.,
135 Lomberd Avenue,
Winnipeg, Manitoba,
R3B 0T4.

31. Thomas, Large & Singer Ltd.,
40 Emblem Court,
Agincourt, Ontario,
M1S 1B1.

32 Harold T Griffin Ltd.,
Suite 201, Terminal,
Warehouse,
Toronto, Ontario,
M4J 1A7.

33. E.D. Morrison & Co.,
P.O. Box 3251,
London, Ontario,
4 6A 4K3.

34. Thomas Williams Co.,
279 Scarboro Crescent,
Scarborough, Ontario,
M1M 2J8.

35. Torms Trading Ltd.,
801 York Mills Road,
Suite 201,
Don Mills, Ontario,
M3B 1X7.

36. United Grain Growers,
101 Devos Road,
Winnipeg, Monitoba,
R3T 2E7.

37. Gibbs, Nathanlal Canada Ltd.,
7370 Cote St. Luc Road,
Suite 216,
Montreal, Quebec,
H4W 1P9.

38. Bush, Boake, Allen Co. Ltd.,
312 St. Patrick,
Lasalle 660 (Montreal),
Quebac.
H 8 N 2H2.

39. Felton International Inc.,
601 Garyray Drive,
Weston, Ontaric,
M9L IP9.

40. Firmenich of Canada Ltd.,
30 Finley Road,
Bramalea, Ontario,
L6T 1A9.

41. Florasynth Canada Ltd.,
989 Cote Street,
Montreal,
128, Quebec.

42. Givaudan (Canada) Ltd.,
60 Overlea,
Toronto, Ontario.

43. Haarmann and Reimer,
1365 Aerowood Drive,
Toronto, Ontario.

44. R.W. Love Ltd.,
39, Parliament Street,
Toronto,
Ontario.

45. Norda Ltd.,
833 King Street West.
Toronto, Ontario,
M5V 1N9.

46. Stange Canada Ltd.,
3340 Orlando Drive,
Mississauga, Ontario,
L4V 1C7.

47. Stuart Broteers,
Division of Glvatiden Ltd.,
3470 St. Antoine St.,
Montreal, Quebec.

48. International Flavours &
Fragrance,
7330 Keela Street North,
Concord, Ontario,
L4K 1B6.

49. Fritzche, Dodge & Olcott
Canada Ltd.,
81 Northline Road,
Toronto, 37Y,
Ontario.

Interested persons can contact them directly.

(Cardamom. 12(6); 1980; 31, 33)

242 Cardamom buyers in Egypt

Public Sector Companies

1. EL NASR Export Import Co.
28-A, Talaat Harb St.
Cairo, A.R.E.,
(Attn. Mr. Ali Mansoor)

2. MIST Co., for Export & Import,
6, Adly Street,
Cairo, A.R.E.

3. Arab Foreign Trading Co.,
12, Yousef El. Guindi St.
Cairo, A.R.E.

Private Importers and Businessmen

1. The Engineering General Co.,
   Variéties Dept. 37,
   Talaat Harb St,
   Cairo, A.R.E.
   (Mr. M. Flagamy)

2. M/s. Sabi Trading & Contracting
   Co., 18A, 26th July St.,
   Cairo, A.R.E.
   (Mr. Helmi El Kadi).

3. Mr. Hosny Marsouk.
   12, Abdel Hamid Said St.
   Cairo - A.R.E.

4. Mr. Mohamed Zakaria Alzemahi,
   2 EL Darb E1 Ahmer St.,
   Cairo, A.R.E.

5. The Egyptian Co. for Packing &
   Distribution Food Stuff,
   16 A, 26th July St.
   Cairo, A.R.E.

6. Mr. Rassan M. Abdel Fattah,
   22, Dokki St.,
   Cairo, A.R.E.

7. Mr. M. Ossama El Naggar,
   Import & Export Trade Centre,
   P.O. Box No. 660,
   Alexandria, A.R.E.

8. Gadgaris Gendi,
   10, Fehmy El Nakrashy St.
   P.O. Box 170, Mindanel Shikh,
   Alexandria (Mr. Abrahim
   Gared Gores).

9. Mr. Sayed Bhedr,
   32, Ahmed Heshmat St.
   Zamslek, Cairo.

10. Mr. Hassan Ibrahim Hid,
    C/o. Hakad Establishment,
    P.O. Box 6370,
    Cairo, A.R.E.

(Cardamom. 12(7); 1980; 21)

FOOD REGULATION, QUALITY CONTROL & HYGIENE

REGULATION

43 Wheat roller flour mills amendment order 1980

In exercise of the powers conferred by section 3 of the Essential Commodities Act, 1955 (10 of 1955), the Central Government hereby makes the following order further to amend the Wheat Roller Flour Mills (Licensing and Control) Order, 1957 namely:-

1. (1) This order may be called the Wheat Roller Flour Mills (Licensing and control) Amendment Order, 1980.

   (2) It shall come into force at once.

2. In the Schedule to the Wheat Roller Flour Mills (Licensing and Control) Order, 1957, ---

(i) in Form II, after condition I, the following condition shall be inserted, namely:-

"II, The licensee shall render all necessary facilities to the licensing authority or the Inspector or such persons as may be authorised by either of them,---

(i) for the inspection of the roller mill, godown, or any other place used or believed to be used by the licensee for the storage or sale of any wheat or wheat products, and

(ii) for the taking of smaples of such wheat or wheat products for examination.";

(ii) in Form III, for item 1, the following item shall be substitued, namely:-

"1. Wheat (Figures in quintals):-

(i) Opening balance.....

(ii) Receipts ----

*(a).....

(b).....

(c).....

Total.....

(iii) Milled during the month .....

(iv) Closing balance with the Roller Mill.....

(v) Quantity hypothecated with the Bank(s). (Here state name of the bank(s))....

(vi) Quantity purchased but not yet received in the Roller Mill.---

(a) Lying with the purchasing agents.....
(Here state the station where lying)

(b) Hypothecated with the Bank(s).....
/ Here state the name of the Bank(s)/

* Here indicate source from where supplies received."

(The Gazette of India, Extraordinary, Part II, Section 3, Subsection (i), April 29th; 1980; p 484)

244 Package tea - definition

In exercise of the powers conferred by rule 12 of the Central Excise Rules, 1944, the Central Government hereby makes the following further amendment in the notification of the Government of India in the Ministry of Finance (Department of Revenue) No.197/62-Central Excises, dated the 17th Nov. 1962 namely:

In the Table annexed to the said notification, against serial No.8, in the Explanation in column (2), the Note shall be numbered as Note 1 and after Note 1 as so numbered, the following Note shall be inserted, namely:

Note 2 - The approval referred to in the explanation defining the expression'Package Tea' shall, not be required in respect of tea bag and the expression 'tea bag' means a pouch or a folded bag made of porous filter paper or nylon mesh containing not more than 5 grams nett of tea per bag for direct infusion along with the said porous material.
(The Gazette of India Part II, Section 3, Subsection (i); April 25th, 1980; p 476)

Food preservatives in UK - 1979 Regulations

Regulations came into force on July 31st 1979, which replace the existing law controlling the use of preservatives in foods in the UK. The new Regulations extend the presently permitted uses of sorbic acid to certain specific foods which are already allowed to contain other permitted preservatives; add further foods to the list of specified foods in which sorbic acid is permitted; permit the use of certain preservatives in aqueous solutions of enzyme preparations and in papain in solid form; permit the use of certain preservatives in marinated herrings and mackerel with a pH of less than 4.5; permit the use of sulphur dioxide in canned garden peas without added colouring matter, and discontinue permission for the use of sorbic acid in cider vinegar and wine vinegar.

The list of permitted preservatives and their specifications of purity remain unchanged.

The Regulations (SI 1979 No.752) are available from HMSO, price £1.25. They amend and supersede the Preservatives in Food Regulations 1975, as amended.
(Food Trade Review. 49(9); 1979; 523)

FDA lowers PCB levels

The Food and Drug Administration announced June 28 it is lowering its allowable levels of polychlorinated biphenyls (PCB's) in fish, poultry and dairy products shipped in interstate commerce.

Effective August 28, any food containing PCB's at levels above the new tolerances will be regarded as adulterated and subject to FDA regulatory action.

PCB's are highly stable chemicals that have been used extensively for industrial purposes but have become unavoidable environmental contaminants from past uncontrolled use. Due to their presence in soil and water, some PCB contamination of food cannot be avoided; once present in food, PCB's cannot be eliminated by processing.

The new tolerance for PCB's in fish and shelfish is two parts per million (ppm). It had been five ppm. The tolerance for milk and dairy products will be reduced from 2.5 ppm to 1.5 ppm (fat basis); in poultry from five ppm to three ppm (fat basis); and in eggs from 0.5 ppm to 0.3 ppm. (Food Production Management. 102(2); 1979; 33)

QUALITY CONTROL

247 Quality control on Ajowan and Poppy seeds

Pursuant to the recommendation of the National Commission on Agriculture the Government of India, Directorate of Marketing & Inspection has proposed to bring Ajowan seed (bishops-weed/[illegible]) and Poppy seed (Khashkash) under compulsor pre-shipment inspection and quality control.
(Spices Newsletter. 14(4); 1980; 3)

248 Analysis of commercial samples of copra

Sample		Moisture %	Fat %	FFA of oil %
Area-Cochin				
Sample	(i) Quality I Copra	3.7	67.3	0.20
	(ii) Quality II Copra	3.8	65.0	0.56
	(iii) Infected Copra	5.3	70.5	0.70
	(iv) Infected Copra	5.8	70.8	0.87
	(v) Smoked dried Copra	5.3	68.8	0.30

(Contd....)

Area-Calicut				
Sample	(i) Infected Copra	5.0	68.5	1.30
	(ii) Good quality Copra	3.8	70.5	0.12
Area-Alleppey				
Sample	(i) Quality I Copra	3.8	70.5	0.12
	(ii) Inferior quality Copra	5.8	66.3	0.20

(Indian Coconut Journal. 10(6); 1979; 3)

Analysis of commercial samples of expeller cake

Sample	Moisture %	Fat %	FFA of Oil %
Expeller Unit-I			
I Stage	10.8	23.1	1.90
II Stage	8.8	13.9	1.00
III Stage	7.2	8.3	1.70
Expeller Unit-II			
I Stage	10.4	28.2	3.00
II Stage	9.2	14.0	1.20
III Stage	8.4	8.5	1.10
Expeller Unit-III			
II Stage	9.0	14.8	0.42
III Stage	8.4	9.9	0.45
Expeller Unit-IV			
II Stage	8.6	11.3	0.60
III Stage	7.0	8.6	0.50

(Indian Coconut Journal. 10(6); 1979; 5)

HYGIENE

Self-cleaning method for seafood wastes

The University of Rhode Island reports that a research worker in its Sea Grant Programme has discovered a way to make seafood wastes clean themselves. It can also be used to float out contaminants from other discharges.

This method developed by Dr. Barnett relies on properties of a foam created from shellfish processing wastes. As more of the waste discharge is pumped through a column of the foam, the bubbles collect small amounts of protein-rich mixtures in the discharge, the major waste product in the processing operation.

"The foam process could be used by any industry where a protein mixture is the major contaminant in a discharge stream", said Dr. Barnett. "Since the foam can also remove solid particles, it has other applications as well. Anything from ground-up string beans to fish wastes from aquaculture operations could be floated out".

Because the substances which the foam removes are mostly edible protein, it can be used as fish food or fertilizer.

Keys to the technique's success, are the type of bubbles in the foam and the substance in the seafood waste, called a surfactant, which coats the bubbles. The foam is created by pumping air into the shellfish processing waste and then forcing the foam through a special device. This produces a foam of tiny, long-lasting bubbles which draw out the protein-rich surfactant from the waste stream.

The ability of foams to remove dissolved contaminants from a discharge stream has been known for many years and commercial surfactants are available. What makes Dr. Barnett's foam so special is the tiny size of the bubbles which means that there is a large amount of surface area which can attract surfactant and contaminants. Another is that the foam can be pumped without breaking down.

(Fishing News International. 18(10); 1979; 87)

251 Detergent for food processing industry

Stauffer Chemical Company has a detergent specifically designed for use in food processing applications. Brite-Gloss is a liquid agent that contains chelating and wetting agents designed to saponify fats and oils digest proteins and disperse particulate soils.

(Processed Prepared Food. 148(12); 1979; 189)

TRANSFER OF TECHNOLOGY & NEW INDUSTRIES

Licences for small flour mills

The entrepreneurs of the roller flour milling plants up to a capacity of 30 tonnes per day, will now have to obtain industrial licences to set up their plants. Owners of the existing industrial undertakings which were previously exempt from licensing but which would not be so exempt, shall not carry on business of such undertakings except under and in accordance with a licence issued in this behalf by the Central Government. Such a licence is required to be obtained within six months. The earlier order of June 1979 that entrepreneurs desiring to instal roller flour milling plants of a capacity of 30 tonnes per day and below need not obtain industrial licences under the provisions of the Industries (Development and Regulation) Act, 1951, if they otherwise fulfill the conditions relating to) exemptions from industrial licensing, has been withdrawn.
(Economic and Commercial News. 10(23); 1980; 9-10)

Furfural from rice husk

Punjab State Industrial Development Corporation Ltd (PSIDC) has signed the collaboration agreement for the setting up of a project for the manufacture of furfural from rice husk. There being no indigenous production of furfural presently, the project will help in import substitution. The project costing Rs.7 crores will have an initial capacity of 3,000 tonnes/yr. The technical know how is being provided by Societa Italiana Furforolo of Italy.
(Chemical Age India, 30(11); 1979; 1051).

Honey-Processing plant in Jammu and Kashmir.

A 100-tonne honey processing plant will be set up in the State by the State Agro-Industries Corporation. A fruit canning centre is also proposed. The Corporation has decided to introduce power-spraying to reduce the cost of orchard spraying. A power-sprayer will soon be acquired from Italy for trial operations.
(Data India. No.8; 1980; 92)

I N D E X

Aflatoxin, Colour sorter 184
Ajowan seed, Preshipment inspection 247
Almond, Colour sorter 184
Area, Soybean 222
Arecanut, Production 225

Bagging machine - versaile (for) Polyethylene bags 200
Baking oven, oil fired (for) Bread 192
Banana, Production 224
Beer powder (to make) Non-alcoholic beverage 179
Beverage (use of) Protein fortifier 166
Biogas production (use of) Fruit waste 172
Box compression fibre board tester 208
Bread packaging, Wax coated parchment paper 201
Brewing process (to reduce) Nitrosamine formation 159

Calcium determination instrument 216
Can opener (used in) Food industry 206
Cardamom
  Production 227
  Trade information 242
Cellulose seal (used for) Glass/Plastic bottles 204
Cheese (used in) Single cell protein production 171
Citrus, powdered drink (use of) Malto dextrin (as) additive 164
Clarifier/Foam reducer 194
Clarifier (for) Continuous processing, Wine 193
Clocimum - clove oil substitute 149
Clove oil substitute - Clocimum 149
Cocoa butter substitute (from) Coconut 174
Cocoa mixes (use of) Non-fat dry milk substitute 177
Coconut butter (substitute for) Cocoa butter 174
Coconut expeller cake, analysis, area statistics 249
Coconut grating, Partially defatting process 175
Cold storage, Temperature monitor 197
Colour analysis, Food 217
Colour concentrates (for) Oil based foods 162
Colour, food (use of) Liquified smoke 163
Colour sorter (for) Almond 184
Comminuting equipment (for) Tomato 185
Condenser - evaporative (with) Centrifugal fans 188
Convenience food, Sterilizer 195
Cooker/Extruder 190
Confectionery packaging, Wax coated paper 201
Copra, analysis, area statistics 248

Dairy products, Analysis 218
Defatted coconut gratings, New process 175
Detergent (used for) Food Processing 251
Distilleries, Statewise statistics 230
Drier, fish 189
Drying, Papain 152

Emulsifier, Food (use of) Polyglycerol ester 165
Enzyme mixture (for) Off flavour prevention (in) Orange juice 160
Export
  Food products, Preshipment inspection 236
  Pepper, World statistics 226
  Processed foods 231
  Seafood 234
  Soymeal 233
Export potential, Fruit/vegetable 232
Extruder/Cooker 190
Extrusion continuous cookes, Food 191

Fermented soy sauce powder (for) Food use 157
Fibre board box, Compression strength tester 208
Filling machine (for) Moist food 199
Fish drier - temperature controlled (reduces) Wastage 189
Fish, transport (use of) Refrigerated tank 203
Flavour - artificial, Food 159
Flavour additive
  Food (use of) Onion powder 156
  Groundnut 158
Flavour, Honey (for) Bakery/Confectionery 161
Flavour (use of) Liquified smoke 163
Flavour encapsulation (by) Malto dextrin (in) Citrus drinks 164
Flour mills, Industrial licence 252

reducing clarifier 194
analysis 210
Colour, analysis 217
preservative, Regulation 245
t, Export potential 232
t waste (used for) Biogas production
roduction 172
ural production (from) Rice
usk 253

ic concentrate 176
n analysis (use of) Solvent
xtraction system 211
n moisture analyzer 213
n storage (under) Nitrogen 153
ndnut
olour sorter 184
lavour additive 158

y flavour (to) Bakery/Confectionery
61
y processing plant (in) Jammu/
ashmir 254

ct, Sugar 238
strial licence (for) Small
lour mills 252
a-red milk analyzer 218
cticide (use of) Synthetic
yrethrin 180

o dextrin (for) Powdered citrus
rinks 164
o project (in) Haryana 150
eting, Soybean 223
, tenderization (using) Electric
urrent 167
tenderizer machine 196
obe bank (at) Japan 221
, analysis (use of) Infra-red
ilk analyzer 218
substitute - non fat (used in)
ry cocoa mixes 177
r (for) Batch processing, Food 198
ture analyzer, Food 213, 214
room project (in) Kashmir 151

osamine reduction (by) New brewing
rocess 169

based food, Colour concentrates
62
n concentrate 176
n powder (as) Flavour additive
56
n trimmer/slicer 181

Orange juice concentrate (use of) Enzyme mixture (to prevent) Off flavour 160
Oven, Oil fired (for) Bread baking 192

Papain, Storage/Drying 152
Parchment paper, Wax coated (Used for) Bread/Confectionery packaging 201
Peanut (see) Groundnut
Peeling machine (for) Potato (use of) Steam/Caustic 182
Peeling machine - Roller type (for) Vegetable 183
Pepper,
Processing programme 168
Production/Export, World statistics 226
Phosphorus determination instrument 216
Plastic bag, degradable (used in) Food Packaging 202
Plate heat exchanger - versatile 187
Polychlorinated biphenyl, Regulation 246
Polyethylene bags, Bagging machine 200
Polyglycerol ester (as) Emulsifier, Food 165
Poppy seed, Preshipment inspection 247
Potato peeling machine - Roller type 183
Potato peeling machine (use of) Steam/ Caustic 182
Powdered beer, non-alcoholic 179
Prawn waste (used in) Fertilizer production 173
Preservative regulations (in) U.K. 245
Preshipment inspection
Ajowan/Poppy seed 247
Preshipment inspection (for) Export, Food products 236
Processed foods, Export 231
Processing programme, Pepper 168
Production
Arecanut 225
Banana 224
Cardamom 227
Pepper, World statistics 226
Production capacity, Starch 228
Protein analyzer (used for) Food analysis 212
Protein determination (in) Grain 211
Protein food - demineralised (from) Whey 178
Protein fortifier (in) Beverage 166
Pyrethrin - synthetic (used as) insecticide 180

Reclamation (of) Tea (by) Automatic machine 207
Refrigerated tank (used in) Fish packaging 203

Regional committees (of) Federation of Indian Export organisation (FIEO) 237
Rice husk (used for) Furfural production 253
Roller flour mill, Regulation 243

Salt, Consumption/Demand 229
Sea food, Export 234
Sea food waste, Self-cleaning method 250
Seal - Cellulose (for) Packaging, Glass/Plastic bottles 204
Sealing machine, Semi-automatic (for) Pharmaceutical/Pesticide/Food industry 205
Single cell protein,
Production (use of) Agricultural waste 170
Production (use of) Cheese 171
Smoke - liquified (as) Flavour/Colour, Food 163
Solids/Moisture analyzer 214
Soybean
Area 222
Marketing 223
Soy meal, Export 233
Soy sauce powder, fermented (used in) Food 157
Spice, Trade information 240
Spice oil, Trade information 241
Spray dried flavour, Food 159
Starch, Production capacity 228
Steel, Ink marking 209
Sterilizer, (for) Convenience food 195
Storage
Food (in) Villages-programme 154
Grain (under) Nitrogen 153
Papain 152
Strainer - high pressure, Food products 186
Sugar, Import 238
Surfactant, Food (use of) Polyglycerol ester 165
Synthetic pyrethrin (used in) Insecticide 180
Synthetic silica (used in) Food-additive 155

Tea
Packaging, Excise regulation 244
Reclamation (by) Automatic machine 207
Temperature monitor (for) Cold storage 197
Tenderization, Meat (using) Electric current 167
Texture analyzer (for) Food analysis 21
Thermo mixer (for) Batch processing, Food 198
Titration equipment 220
Tomato, Comminuting equipment 185
Trade information, Cardamom 242
Trade information
Food 239
Spice 240
Spice oil 241
Trade information (by) Developing countries liaison unit 235
Trimmer/Slicer (for) Onion 181

Vegetable, Export potential 232
Vegetable peeling machine - Roller Type 182, 183
Village level, Food storage programme 154

Wastage (of) Fish, reduction (by) Fish drier 189
Waste, Seafood, disposal 250
Waste utilization
Agriculture (for) Single cell protein 170
Dairy (for) Single cell protein production 171
Fruit (for) Biogas production 172
Prawn (for) Fertilizer production 173
Rice (for) Furfural production 253
Water activity system, regulation 215
Wax coated parchment paper (for) Bread/Confectionery packaging 201
Wheat flour mill, Regulation 243
Whey product (used in) High protein demineralised food 178
Wine, Continuous processing (use of) Clarifier 193

Y-type strainer, Food products 186

Printed at Offset Press CFTRI, Mysore 570 013